THUNDERSTORMS.

The frequency of thunderstorm days in the different months and in the several States and Territories is shown approximately by the figures of Tables V and VI. The first-named table has been prepared from reports of both regular and voluntary observers with a view of showing the number of thunderstorm days recorded each month in the immediate neighborhood of the respective stations. The second table shows the number of days on which thunderstorms were recorded in the State or Territory as a whole. In preparing the last-named table reports from all stations whatsoever were used. The number of thunderstorm days for a given State, as shown in Table VI, depends largely upon the size of the State and the number and distribution of observing stations. In the District of Columbia, for example, with but one station, the number of thunderstorm days was 45, while for the adjacent State of Maryland, with an average of 58 stations, thunderstorms were observed on 126 days. In Virginia, with about 54 stations, the number of thunderstorm days was 116. The number of thunderstorms observed at a single station bears a fairly definite relation to the number that would be observed were it possible to greatly enlarge the field of observation. The ratio for Washington, D. C., is about 2.7, that is to say, in order to ascertain the number of thunderstorm days for a region equal in area to the adjoining States of Maryland and Virginia we have only to multiply the number observed at Washington by the constant 2.7.

The greatest number of thunderstorms occurs in the south Atlantic and Gulf States and the Mississippi Valley. The number diminishes toward the northward and westward, although there seems to be a second region of maximum frequency along the eastern foothills of the Rocky Mountains in Colorado, Wyoming, and northern New Mexico. West of the Rockies, except possibly in Idaho, the number diminishes to less than 20 per annum. In California, Oregon, and Washington, they rarely occur on the immediate coast, but are not infrequent in the interior valleys and mountains back of the coast range. In Arizona they are most frequent in July and August, the rainy season in the mountainous part of that Territory.

There seem to have been more thunderstorms in 1899 than in the preceding year, although the difference is not very great. The greatest increase in the number of thunderstorms in 1899, as compared with 1898, occurred in the States of Florida, Michigan, Wisconsin, Minnesota, Iowa, and Nebraska. In a number of States, particularly those bordering on the Gulf of Mexico, there were fewer thunderstorms in 1899 than in 1898.

TABLE C.—*Monthly and annual departures of relative humidity from the normal, 1899.*

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
New England	− 2	+ 1	+ 4	− 4	− 4	− 6	0	0	− 4	+ 2	− 2	0	− 1.2
Middle Atlantic	0	+ 5	+ 6	+ 1	0	− 2	+ 3	+ 3	− 1	+ 6	+ 1	− 2	+ 1.7
South Atlantic	+ 2	+ 2	+ 1	+ 1	+ 1	− 3	− 2	− 2	− 3	+ 5	+ 1	− 7	− 0.3
Florida Peninsula	+ 2	+ 1	0	− 1	− 2	− 3	0	− 2	− 1	0	− 3	− 3	− 1.0
East Gulf	0	+ 3	− 1	+ 3	0	− 3	− 3	+ 1	− 6	+ 2	− 5	− 5	− 1.2
West Gulf	+ 1	+ 3	− 1	+ 1	+ 6	+ 2	+ 2	− 3	− 9	+ 1	+ 2	0	+ 0.4
Ohio Valley and Tennessee	0	+ 3	+ 5	+ 1	+ 1	− 1	− 1	− 1	− 6	0	+ 3	− 2	+ 0.2
Lower Lakes	− 6	− 5	+ 3	− 3	− 1	− 5	+ 2	− 3	− 4	+ 2	+ 2	− 2	− 1.7
Upper Lakes	+ 2	+ 2	+ 4	+ 2	+ 3	0	+ 6	+ 3	+ 2	+ 3	+ 3	+ 1	+ 2.6
North Dakota	− 6	− 4	+ 3	+ 2	+ 3	+ 4	0	+ 5	− 1	+ 8	0	+ 2	+ 1.3
Upper Mississippi	− 2	− 1	+ 6	+ 2	+ 3	− 1	0	+ 1	− 4	0	+ 3	+ 1	+ 0.7
Missouri Valley	− 8	− 5	+ 5	+ 1	+ 5	+ 3	0	+ 1	− 8	+ 1	+ 2	0	− 0.2
Northern Slope	− 3	+ 8	+ 8	+ 1	+ 4	− 1	+ 2	+ 5	+ 1	+10	+ 2	+ 8	+ 3.8
Middle Slope	0	+ 6	+ 6	−10	− 3	+ 2	+ 7	− 5	− 4	0	+ 4	+ 7	+ 1.6
Southern Slope	+ 2	− 5	−10	− 1	+ 4	+ 6	+10	−19	− 5	0	+13	+ 6	+ 0.1
Southern Plateau	− 4	−12	−12	− 3	−10	+ 5	− 1	−12	−13	−10	− 2	− 7	− 6.8
Middle Plateau	− 1	+ 2	+ 4	− 2	− 3	− 4	− 2	+ 5	− 9	+ 3	+ 2	+ 3	− 0.2
Northern Plateau	− 2	− 3	0	− 2	+ 2	0	− 3	+ 9	− 3	+ 5	+ 2	0	+ 0.4
North Pacific	+ 2	0	− 4	− 4	+ 1	− 5	− 5	+ 1	− 3	− 3	0	− 2	− 1.9
Middle Pacific	− 5	−11	0	− 7	− 6	− 5	− 9	− 5	− 12	− 4	+12	0	− 4.3
South Pacific	− 6	−10	− 5	+ 2	+ 1	+ 5	+ 1	+ 4	+ 2	+ 1	+11	− 3	+ 0.2

TABLE D.—*Monthly and annual departures of average cloudiness from the normal, 1899.*

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
New England	−0.5	+0.4	+1.1	−1.3	−0.1	0.0	+0.1	+0.5	−0.1	+0.9	+0.3	−0.3	+0.1
Middle Atlantic	−0.1	+0.5	+1.2	−0.7	+0.1	−0.3	+0.3	+0.6	−0.8	+0.2	−0.4	−0.5	0.0
South Atlantic	+0.7	+0.5	+0.1	+0.6	0.0	−0.7	+0.5	−0.1	−1.3	+1.1	−0.6	−0.2	0.0
Florida Peninsula	−1.0	+0.2	−0.9	+0.3	−1.0	−0.6	+0.8	−0.2	+0.2	+0.8	+0.1	+0.7	0.0
East Gulf	+0.7	+0.7	−0.2	0.0	−0.9	−0.7	−0.5	−0.6	−1.7	+0.8	+0.1	+0.5	−0.2
West Gulf	+0.2	−0.2	−0.1	+0.4	+1.1	+0.4	+0.2	−2.0	−1.4	+0.7	0.0	−0.1	−0.1
Ohio Valley and Tennessee	0.0	+0.1	+1.0	+0.1	+0.7	−0.8	+0.1	−0.4	−0.6	0.0	+0.2	−0.3	0.0
Lower Lakes	−0.4	+0.2	+1.4	−0.5	+0.6	−1.1	+0.1	−1.0	+1.2	−0.7	+0.4	0.0	0.0
Upper Lakes	−0.6	−0.5	+1.0	−0.3	+0.1	−0.2	+0.4	−0.2	+0.9	−0.1	−0.1	−0.4	0.0
North Dakota	+0.2	−0.8	−0.1	−1.0	+0.7	−0.8	−1.0	−0.1	−0.8	+0.9	−1.3	−0.4	−0.4
Upper Mississippi Valley	−0.1	0.0	+1.2	−0.2	+0.9	−0.4	+0.1	+0.3	−0.3	−0.2	+0.5	−0.5	+0.1
Missouri Valley	−0.3	−0.4	+0.6	−0.2	+0.7	−0.1	+0.4	+0.1	−0.5	+0.1	+0.5	+0.5	+0.1
Northern Slope	+1.1	+1.0	+0.8	−0.4	+0.6	−0.1	+0.4	+0.5	−0.6	+1.3	−0.2	+1.2	+0.5
Middle Slope	+0.8	0.0	+0.6	−0.2	−0.4	+0.5	+0.8	−1.0	−0.4	+0.5	+1.0	+0.9	+0.3
Southern Slope	+0.2	−0.9	−1.1	+0.9	−0.8	−0.4	+0.6	−3.6	−1.6	+0.1	+1.0	+0.8	−0.4
Southern Plateau	−0.7	−0.8	−0.6	+0.5	+0.7	+0.3	0.0	−1.2	−0.7	+0.5	+0.3	+0.4	−0.1
Middle Plateau	−1.6	+0.4	+1.7	+0.4	+1.8	−0.4	+1.1	+1.2	−0.7	+1.7	+1.3	+0.4	+0.6
Northern Plateau	+0.9	−0.2	−0.3	−0.4	+0.5	−0.8	−0.4	+1.6	−1.3	+1.2	+1.0	0.0	+0.1
North Pacific	+1.6	+1.0	+0.1	+0.5	+2.0	−0.1	−0.4	+2.8	−0.9	+0.8	+1.9	+0.6	+0.8
Middle Pacific	+1.2	−0.7	+1.5	−0.4	−0.2	−1.2	+0.6	+1.0	−0.1	+1.0	+3.0	+0.2	+0.5
South Pacific	−0.1	−1.7	−0.1	−0.5	−0.7	+0.1	−0.6	−0.1	−0.5	+0.5	+2.4	+0.2	−0.1